IS VIOLENCE A MENTAL HEALTH PROBLEM?
Some Data

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Recent studies have demonstrated a small but consistent increased risk of violence for the mentally ill, notably for diagnoses of substance abuse, cluster B personality disorders, and to a lesser extent, schizophrenia spectrum disorders. A review by Nestor (2002) demonstrated that the risk of violence is dynamic, varying as a function of certain personality dimensions interacting with the environment. Only some persons with mental disorders will show a greater risk for violence. They will show four crucial personality dimensions:
1) impulse control - compromised by most mental illnesses
2) affect regulation - compromised by most mental illnesses
3) narcissism - seen in cluster B personality disorders, psychopathy
4) paranoid personality style - seen in schizophrenia/bipolar

Violent and criminal acts directly attributable to mental illness account for a very small proportion of overall violence, most of which involves drug deals, ongoing criminality, and domestic arguments. The mentally ill are more likely to be victims than perpetrators. Their families are more likely to be their victims than unrelated people in the community.

Violence and Diagnosis
Lifetime prevalence of violent behavior:

General population	2.05%
Mental illness	10.6-12.7%
Mental retardation	10%
AODA	20.3%
AODA + schizophrenia/affective	30%

Schizophrenia
Schizophrenics have 3x rate of violence as the general population. There is evidence that psychotic symptoms, when not paranoid, may decrease the risk of violence over time. But a paranoid cognitive style increases the risk of violence. Paranoid delusions that are organized, incorporate personal targets, marked by alien control may be dangerous.

When people are chronically psychotic, there may also be a breakdown of affect regulation - anger, hostility, irritability. Aggression may also be due to overstimulation and agitation as well as delusions/psychosis. Victims are often members of the subject's social and treatment network. Substance abuse intensifies the problem.

Paranoid schizophrenics who are delusional tend to be more violent outside the hospital. Acutely disorganized schizophrenics are more likely to be violent in the hospital. Violence can also be an indirect complication of akathisia as patients restlessly move around and bump into others. In the hospital the most common precipitants are conflicts with peers or staff.

Specific features of schizophrenia linked to violence:
- Paranoid cognitive style
- Hostility and irritability
- Command hallucinations- if cause a negative emotion
- Delusions - persecutory, systematized

- Substance abuse - more so for women than men. The risk of committing homicide is 10x greater in schizophrenics than the general population, 17x higher in schizophrenic alcoholic men and 80x higher with schizophrenic alcoholic women
- Noncompliance with medication
- Comorbid antisocial personality disorder or psychopathy

Past history of violence (forensically released schizophrenics have 50x the risk of homicide)
Homelessness - 40x more likely to be violent, 60x more likely to attempt murder, 25x more likely to murder

Bipolar Disorder
Impulsivity is prominent. Clients have a 49% lifetime prevalence of violent behavior . Any agitated manic patient is likely to be gregarious one moment and violent the next.
Children will show fewer discrete episodes and more volatility and irritability with attention problems at school. Adolescents will have more psychosis. In the geriatric population there is a high degree of primary CNS problems (43%). There will be symptom overlap between mania and dementia. Secondary bipolar disorder doesn't respond as well to lithium.

Substance abuse
Strongest correlate to violence (12-16x higher). It is responsible for more aggression than all mental illnesses combined. Most commonly seen with AODA comorbid with cluster B personality disorders, especially APD.

Alcohol is involved in most murders, and in violence in general as the result of disinhibition, emotional lability and impaired judgment. Drinking more than 5 drinks at an occasion increases likelihood of violence, either as perpetrator or victim. Alcohol is present in more than 1/2 of all incidents of domestic violence. 54% of people convicted of violent crimes used alcohol just before the offense. 1/3-1/2 of sexual assaults involve alcohol consumption by either or both parties. 10% of youth convicted of homicide are using alcohol/drugs. Alcohol is involved with 31% robberies, 25.5% assaults, and 9.3% sexual offenses. 64% of all reported cases of child abuse and neglect were associated with parental use of alcohol/drugs. 48-87% of batteries are intoxicated.

Stimulants are particularly dangerous. Narcotics and benzodiazepines tend to inhibit aggression. PCP can cause violence, suicide, and bizarre behaviors. This is usually not seen with LSD.

OCD
Sometimes obsessions and compulsions may be aggressive in nature.

Personality disorders
Longitudinal studies indicate that cluster B personality disorders (borderline, narcissistic, histrionic, antisocial) have significant clinical risk for violence. This is probably due to problems with controlling affect and impulses, or in the case of antisocial personality, premeditated violence. Narcissistic injury may play an important role in psychopathic violence.

Psychopathy: The description of this disorder dates back to the 19th Century, but was fully described by Cleckly in his book, The Mask of Sanity (1955). This diagnosis has been operationalized by Hare in the diagnostic instrument - The Psychopathy Checklist. Psychopathic offenders have higher number of criminal charges per year out of prison and more violent crime. They are responsible for more violence in prisons and more likely to recidivate (3-4x.)
Descriptors are:

Superficial
Grandiose
Deceitful
Lack of remorse
Lack of empathy
Does not accept responsibility
Impulsive
Poor behavioral controls
Lacks goals
Irresponsible
Adolescent antisocial behavior

Organic brain disease
There are one million new cases of brain injury every year. 70% of patients with brain injury have aggression and irritability.

Epilepsy: Interictal aggression is controversial, but some investigators report it with temporal lobe epilepsy. Attack is planned, with a clear motive, often moral outrage. Subject doesn't deny attack, but may regret it.

Frontal lobe syndrome: minor stimuli may result in brief aggressive outbursts, unplanned, unsustained, ineffectual. Social and behavioral changes include: exacerbation of previous personality traits, apathy, lewdness, poor personal appearance, intrusiveness, increased risk taking, impulsivity. Affective changes: shallowness, apathy, lability, dyscontrol of rage and violence. Intellect changes: reduced capacity for language, symbols, mathematics, to focus, concentrate, be oriented.

When violence has an organic cause, you are likely to see:

Triggered by minor episode.
No clear aims or goals
Explosive outbursts without a buildup
Feelings of remorse.
Long episodes of calm and quiet

Medical illness

The following have been linked to aggressive behavior: hypoxia, electrolyte disturbances, hepatic disease, renal disease, vitamin deficiencies, systemic infections, hypoglycemia, Cushing's disease, hyperthyroidism, systemic lupus, heavy metal poisoning, insecticides, porphyria.

Geriatrics/Dementia

In community and nursing home residents, 59% are verbally aggressive, 23.7% of dementia patients are physically agitated/aggressive, and 4% are sexually aggressive. Longitudinal studies show 96% of dementia patients are aggressive sometime in their illness. The mean duration was 16 months. It may persist in the advanced stages of dementia. Risk factors include:

male gender
severity of dementia
comorbid psychosis
depression
when there are intrusions into resident's space
pain

Treatment - antipsychotics, valproate, carbamazepine, BZD's, SSRI's, acetylcholinesterase inhibitors, beta-blockers, estrogens, androgens.

Non-pharmacological treatments include walking programs, exercise, music, behavior management training, staff training, bright light, audiotapes of family members talking, specialized care units.

Mental Health Inpatient Violence

Assaulters: most are young schizophrenics or patients with organic brain syndrome/mental retardation. There is no difference in gender, although women in secure facilities are more likely to be violent than men. A few patients cause most of the assaults.

Victims: older and smaller than assaulters. Staff are assaulted when demanding activity from patient, refusing a request, imposing sanctions, acting in an authoritarian manner, wearing a uniform, engaging in controlling violence and using seclusion and restraint. Inexperienced direct care staff and teachers are most frequent targets.

Environment: Hostility during the admission interview had no utility in predicting physical aggression, although it did predict verbal aggression. See aggression when there is crowding and high turnover. Minor violence is common in institutions. Poor staffing levels and floating staff contribute. When patients have relatively free access to each other and staff, at times when there is little structured activity, when there is a clear payoff for violence, when it is excused or when it is expected, when it is hot, when adolescents see violence on TV or movies, when patients are treated in a hostile, rejecting manner. Child and adolescent units are the most dangerous.

Mental Health Outpatient Violence

Patients with Axis II disorders were 4x more likely to be violent after discharge from the hospital than Axis I (which was presumably treated in the hospital). 3.7% were violent within 2 weeks after discharge from the hospital. Spouses, family members and other intimates were the most likely targets, 70% of people attacked the same person before and after discharge.

Violence in the hospital was not predictive of violence after discharge.

THEORIES OF AGGRESSIVE BEHAVIOR

Drive Theories
Instinctual behaviors lead to aggression in humans, which need to be controlled by social influence. These psychodyamic theories involve variations of the concepts of ego, id, and superego

Social Learning Theories
Violence is learned at home from watching parents and peers. Theorists have identified possible influences:

1) Violent toys
2) Violent media
3) Violent parents have violent children
4) Violent American culture
5) Access to guns
6) Poverty /discrimination

Biological Theories
Biological and social factors interact jointly to generate aggression. Also,
human beings have evolved higher cortical centers that serve to suppress the emergence of aggression. The orbital prefrontal cortex plays a key role in inhibiting aggressive responses to threatening and provocative stimuli. As a rule, most adults never become violent.

The Serotonin System: This is the most extensively studied system in relation to impulsive aggression. Serotonin modulates activity of the inhibitory areas of the prefrontal cortex and anterior cingulate cortex. What is happening at these receptors is quite complex and not totally understood as yet. The current hypothesis is that low serotonin activity
1) increases aggressive behavior by increasing the trait of impulsivity
2) increases dopamine transmission which increases 1) vulnerability to impulsivity and 2) noradrenergic function which, in turn, also interferes with cortical inhibition.

GABA: a primary inhibitory neurotransmitter, it may help dampen and prevent aggression. The balancing amino acid is glutamate, which is related to increased excitation and hostility.

Acethylcholine: Nicotinic receptors are linked to reduced predatory and affective aggression. Muscarinic receptors are linked to increases in aggression.

Catecholamines: Increased reactivity of the noradrenergic and dopaminergic system may facilitate aggressive behavior in humans possibly by increasing vulnerability to impulsivity and interfering with cortical inhibition. Once again, the picture is quite complicated.

Peptides: Vasopressin plays an important role in modulating memory and aggressive behavior. Males have higher levels. Opiate binding protein has been associated with aggression. Metenkephalin levels have been associated with self-injurious behavior. Reduced cholesterol has been associated with aggression and suicide.

Genetics: Heritability of aggressive behavior is estimated at 44 - 72% in humans. It is clear that there is not a single gene for aggression. Evidence for the interaction of heredity and environment is found in the MAO A and B variants. These two variants are indistinguishable in children in stable homes, but in abusive homes, those without the MAO A gene are 3x as violent.

Brain Lesions: Brain lesions can lead to aggressive behavior, but there is not a 1:1 correlation with brain pathology.

Three regions are directly related to impulsivity:
The **nucleus accumbens** is a key brain region in modulating reinforcement and reward and it effects people's ability to delay an immediate reward for a later one.
The **orbitofrontal regions** help people think consequentially.
The **amygdala** pays a central role of damping the emotional state.
Lesions impair people's ability to make decisions and their ability to control aggressive behavior.

Other brain regions linked to aggression:
The **hypothalamus** regulates the autonomic nervous system - body temperature, appetite, sleep-wake cycle, sexual activity, and aggression.
The **limbic system** in general associates sensory input with behavior, adding emotional tone.
The **prefrontal cortex** modulates limbic and hypothalamic activity. Lesions to the front lead to disinhibition and lack of remorse. Lesions to the back lead to apathy and lack of planning. Lesions to the orbital area effect emotional aggression.

Hormones: In most mammalian species, the male is more aggressive. But large studies in the general population have failed to find a correlation between levels of circulating testosterone and aggression. There is some research indicating that the presence of testosterone in the perinatal period may sensitize the brain to the aggression enhancing effects of testosterone later on.

Epilepsy: Chronic stimulation in certain areas of the brain, which is not sufficient to induce seizures, can alter the behavior of the animal and increase aggression. There is statistical evidence linking epilepsy and aggressive or antisocial behaviors.

Medical Status: Aggressive behavior has also been linked to aggressive behavior: hypoxia, electrolyte disturbances, hepatic disease, renal disease, vitamin deficiencies, systemic infections, hypoglycemia, Cushing's disease, hyperthyroidism, systemic lupus, heavy metal poisoning, insecticides, porphyria.

Low resting heart rate represents the best-replicated biological correlate of antisocial behavior - fearlessness and under-arousal - but at least 15 studies have failed to find it.

Environment/Biology: In animals, isolation, sleep deprivation, chronic immobilization, all increase aggression. Alcohol effects the animal differently depending on the animal's position in the hierarchy.

Evolutionary Psychology (Pinker, 2000)
Like all living things, humans are the outcome of natural selection. We have inherited traits that allowed our ancestors to survive and reproduce. In this context, violence arises in certain environmental contexts and serves important functions. Violence is not pathological in the sense that it does not mean something has gone wrong.
What is the evidence that violence is a normal human experience?
1) Murders in other primates
2) Larger size, strength, upper body mass of males
3) Effects of testosterone on dominance and violence
4) Emotion of anger
5) Fight or flight response
6) Disrupted brains show less inhibition
7) Boys in all cultures engage in rough and tumble play - practice for fighting and divide themselves into coalitions that compete aggressively
8) Aggression peaks at age 2. Babies don't kill each other because we don't give them access to guns and knives.
9) More than 80% of women and 90% of men fantasize about killing people they don't like - especially romantic rivals, stepparents, and people who have humiliated them in public.
10) Almost everyone recognizes the need for violence in defense of self, family, innocent victims

What is the evidence for violence being a male rather than female trait?

1) In all human cultures, men are more aggressive, prone to stealing, prone to lethal violence, more likely to woo, seduce, trade favors for sex, rape.

2) Many of these psychological differences are predictable based on physical differences. The female has to invest more calories and risk in offspring, she also invests more in nurturing after birth. Males are bigger to compete with each other. Women are more likely to select a father who can provide. And, in fact, our DNA reflects a widespread number of mothers and fewer fathers.

3) Androgens/testosterone have a permanent effect on the brain - girls who had high androstenedione (which was corrected at birth) grow into tomboys, greater interest in trucks than dolls, better spatial abilities, more sexual fantasies and attractions to other girls. Variation in testosterone level in the same man correlates with libido, self-confidence, and drive for dominance. Higher in violent vs. non-violent criminals, trial lawyers versus paper lawyers. High testosterone in women makes them smile less often, have more affairs, stronger social presence, stronger handshake.

4) As for evidence against the social learning theory and contrary to popular belief, parents in contemporary America do not treat their sons and daughters very differently (study of 28,000 children).

Violence provides a response to the following circumstances:
1) Competition: Natural selection is powered by competition - we do what we need to do to survive, including neutralizing other humans who are monopolizing desirable land, food, and mating partners. Impoverished young men are likely to risk life and limb to improve their chances for status, wealth, and mates.

2) Distrust: The best defense is a good offense.

3) Advertised deterrence: We won't attack first, but we will survive and strike back.

4) Glory/honor: Most murders result from nothing at all

What to do to combat the natural response of violence?
A governing body with a guaranteed monopoly on the legitimate use of violence neutralizes most of the above reasons for people to be violent. Adjudication of armed authority is the most effective general violence reduction technique ever devised. In pre-state societies, up to 60% of men died in murder.
Expanding our empathic group is also a way to reduce violence to "outsiders."

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